AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-95 (Canceled)

96. (Currently Amended) Electrical reactor for reforming a gas, the gas comprising at least one possibly substituted hydrocarbon, and/or at least one possibly substituted organic compound, containing carbon atoms and hydrogen as well as at least one heteroatom, in the presence of an oxidizing gas;

said reactor including:

- an enclosure;
- a reaction chamber provided with at least two electrodes and disposed inside the enclosure, said reaction chamber comprising at least one porous conductive ~~lining~~ filling material ~~and defining~~ which defines as a whole or in part a reforming catalyst, the ~~lining in question~~ conductive filling material being electrically insulated from ~~the~~ a metal wall of the enclosure so as to prevent any short-circuit;
- at least one ~~supply of~~ gas to be reformed supply duct;
- at least one oxidizing gas supply duct, that is distinct or not from the ~~supply of~~ gas to be reformed supply duct;
- at least one reformed gas outlet; and
- ~~one~~ an electrical source ~~allowing~~ adapted to power up the electrodes ~~and resulting in the production of~~ in order to generate an electronic flux in the conductive ~~lining~~ filling material between the electrodes~~; and possibly~~
- ~~at least one heat input into the lining, optionally preferably resulting from production of the electronic flux in the lining~~.

97. (Currently Amended) ~~Electrical reactor for reforming a gas comprising at least one possibly substituted hydrocarbon, and/or at least one possibly substituted organic compound, containing carbon atoms and hydrogen as well as at least one heteroatom, in the presence of an oxidizing gas;~~

~~said reactor including:~~

~~- an enclosure;~~

~~- a reaction chamber provided with at least two electrodes and disposed inside the enclosure, said reaction chamber comprising at least one conductive lining material and defining as a whole or in part a reforming catalyst, the lining in question being electrically insulated from the a metal wall of the enclosure so as to prevent any short-circuit;~~

~~- at least one supply of gas to be reformed;~~

~~- at least one oxidizing gas supply, that is distinct or not from the supply of gas to be reformed;~~

~~- at least one reformed gas outlet; and~~

~~- one electrical source allowing to power up the electrodes and resulting in the production of an electronic flux in the conductive lining between the electrodes,~~ A reactor according to claim 104, wherein said ~~lining defining~~ filling material is an iron or iron alloy ~~based catalyst; and possibly~~

\- ~~at least one heat input into the lining, optionally preferably resulting from production of the electronic flux in the lining~~.

98. (Previously Presented) Reactor according to claim 96, in which the reaction chamber is of parallelepiped shape or cylindrical.

99. (Currently Amended) Reactor according to claim 96, in which at least one of the electrodes is of hollow type and constitutes ~~the~~ an inlet port of the gas to be reformed.

100. (Currently Amended) Reactor according to claim 96, in which at least one of the electrodes is of hollow type and constitutes a gas to be reformed supply duct and an oxidizing gas supply duct.

101. (Previously Presented) Reactor according to claim 96, in which at least one of the electrodes is of hollow type and constitutes the outlet for the gases from reforming.

102. (Previously Presented) Reactor according to claim 96, in which at least two of the electrodes are disposed opposite one another.

103. (Currently Amended) Reactor according to claim 96, comprising at least two metal electrodes each consisting of a tubular member and a hollow perforated disk, ~~said~~ one disk ~~is~~ being located at the end of ~~the tube~~ gas to be reformed supply duct, said duct ~~that~~ opens into the reaction chamber and wherein said disk is in contact with the ~~lining~~ filling material of the reaction chamber to ensure electrical current supply to the ~~lining~~ filling material ~~and its temperature rise by Joule effect~~.

104. (Currently Amended) Reactor according to claim 96, in which the ~~material of the~~ conductive ~~lining~~ filling material is selected from the group consisting of elements of group VIII of the periodic table (CAS numbering) and alloys containing at least one of said elements~~, preferably the lining is selected from the group consisting of at least 80% of one or more of said elements of group VIII, still more preferably from the group consisting of iron, nickel, cobalt, and alloys containing at least 80% of one or more of these elements, still more advantageously the lining is selected from the group consisting of carbon steels~~.

105. (Currently Amended) Reactor according to claim 96, in which the ~~lining~~ filling material consists of balls and/or threads based on at least one element of group VIII or on at least one metal oxide~~, preferably based on iron or steel~~.

106. (Currently Amended) Reactor according to claim 97, in which the ~~lining~~ filling material consists of balls and/or threads based on iron or steel.

107. (Currently Amended) Reactor according to claim 96, in which the material, in dense state, has an electrical resistivity at 20 °C that is ~~preferably comprised~~ between 50×10^{-9} and 2000×10^{-9} ohm-m~~, more preferably comprised between 60 x 10^-9 and 500 x 10^-9 ohm-m, and still more preferably comprised between 90 x 10^-9 and 200 x 10^-9 ohm-m~~.

108. (Currently Amended) Reactor according to claim 104, in which the ~~lining~~ filling material ~~consists of elements of the conductive material in~~ is in a form selected from the group consisting of straws, fibers, filings, frits, balls, nails, threads, filaments, wools, rods, bolts, nuts, washers, chips, powders, ~~grains,~~ granules and perforated plates.

109. (Currently Amended) Reactor according to claim 108, in which the ~~lining~~ filling material ~~at least partly consists of~~ comprises perforated plates and the surface percentage of the openings in the plate is comprised between 5 and 40%~~, still more preferably between 10 and 20%~~.

110. (Currently Amended) Reactor according to claim 108, in which the filling material ~~of the lining~~ is made of soft steel wool.

111. (Currently Amended) Reactor according to claim 103, in which the filling material ~~of the lining~~ is previously treated to increase at least one of the following characteristics:

- specific surface area;
- purity; and
- chemical activity.

112. (Previously Presented) Reactor according to claim 111, in which the previous treatment is a treatment with a mineral acid and/or a heat treatment.

113. (Currently Amended) Reactor according to claim 108, in which the conductive ~~lining~~ filling material consists of fibers having a characteristic diameter comprised between 25 micrometers and 5 mm, ~~still more preferably between 40 micrometers and 2.5 mm, and still more preferably between 50 micrometers and 1 mm,~~ as well as a length higher than 10 times its characteristic diameter~~, more preferably higher than 20 times its characteristic diameter and still more preferably higher than 50 times its characteristic diameter~~.

114. (Currently Amended) Reactor according to claim 96, in which the conductive ~~lining~~ filling material defines a porous medium having a volume surface of more than 400 m^2 of exposed surface per m^3 of reaction chamber~~, preferably more than 1000 m^2/m^3, still more preferably more than 2000 m^2/m^3~~.

115. (Previously Presented) Reactor according to claim 96, in which at least one gas to be reformed supply duct is mounted perpendicular to the direction of the electronic flux produced between the electrodes.

116. (Currently Amended) Reactor according to claim 96, in which the reaction chamber is cylindrical and at least one of ~~the ducts for supplying a gas mixture consisting of~~ the gas to be reformed supply duct and/or the oxidizing gas supply duct~~,~~ is disposed tangentially with respect to the cylindrical wall of the reaction chamber.

117. (Currently Amended) Reactor according to claim 96, in which at least one of the at least one reformed gas outlet ~~outlets of the reformed gases obtained~~, is disposed in the reaction chamber opposite the gas to be reformed supply duct.

118. (Currently Amended) Reactor according to claim 96, in which the electrical source consists of a current transformer in the case of an electrical supply of alternating current (AC) type or a current rectifier in the case of an electrical supply of the direct current (DC) type, which electrical source has a power that is calculated according to the energy needs of the reforming reactions under consideration and said electrical source having to supply a minimum amperage calculated by the following equation:

$I_{minimum} = \lambda \cdot F$ (10)

in which:

$I_{minimum}$ is the minimum current to be applied, given in A;

λ is a parameter that depends on the geometry of the reactor, of the type of ~~lining~~ filling material, of the operating conditions and the gas to be reformed; and

F is the molar flow of the gas to be reformed, expressed in mole of gas to be reformed / second,

the parameter λ is established experimentally by varying the current by means of a source of variable amperage (AC or DC) and also by varying the flow of gas to be reformed.

119. (Currently Amended) Reactor according to claim 96, in which the conductive ~~lining~~ filling material has a porosity index comprised between 0.50 and 0.98~~, more preferably comprised between 0.55 and 0.95, and still more preferably between 0.60 and 0.90~~.

120. (Currently Amended) Reactor according to claim 96, in which the time of residence of the reactants is ~~preferably~~ more than 0.1 second~~, more preferably more than 1 second, and still more preferably more than 3 seconds~~.

121. (Currently Amended) Reactor according to claim 119, in which the ~~lining~~ filling material consists of a wool made of steel threads mixed with spherical materials ~~such as steel balls~~.

122. (Currently Amended) Reactor according to claim 96, in which in addition to the conductive ~~lining~~ filling material, the reaction chamber contains non conductive and/or semi-conductive and/or electrically insulating materials, ~~such as ceramics and alumina,~~ the latter being adequately disposed in the reaction chamber in a manner to adjust the total electrical resistance of the ~~lining~~ filling material.

123. (Currently Amended) Reactor according to claim 103, in which at least one electrode is of the perforated type, and having an opening diameter of more than 25 micrometers, the holes being ~~preferably~~ uniformly distributed according to a density of at most 100,000 openings per cm^2 of electrode surface.

124. (Previously Presented) Reactor according to claim 123, in which the holes are such that the energy loss resulting from gas crossing through the electrode or electrodes is not in excess of 0.1 atmosphere.

125. (Previously Presented) Reactor according to claim 123, in which the openings are distributed at the surface of the perforated electrode so as to provide a uniform diffusion of the gases through the reaction chamber.

126. (Previously Presented) Reactor according to claim 123, in which the size of the openings increases in radial direction of the perforated electrode or electrodes.

127. (Currently Amended) Reactor according to claim 96, in which one or more of the electrodes is such that its face exposed to the ~~lining~~ filling material is provided with protuberances and/or projections~~, which are preferably conical and still more preferably needle shaped~~.

128. (Currently Amended) Reactor according to claim 127, in which the protuberances and/or projections are such that their spacing density corresponds~~, in a preferred embodiment,~~ to more than 0.5 unit per cm^2 of electrode.

129. (Currently Amended) Reactor according to claim 127, in which the length of the protuberances and/or projections may vary between 0.001 and 0.1 times the length of the ~~lining~~ filling material of the reaction chamber, and the width of these protuberances and/or these projections may vary between 0.001 and 0.1 times the diameter of the disk of the electrode.

130. (Previously Presented) Reactor according to claim 127, in which the projections are conical.

131. (Currently Amended) Reactor according to claim 130, in which the ratio between cone height and cone diameter is at least 1, ~~preferably this ratio is higher than 5 and still more preferably said ratio is higher than 10~~.

132. (Currently Amended) Reactor according to claim 96, wherein the reactor is dimensioned so as to constitute a reactor of the compact type.

133. (Currently Amended) Electrical process for gas reforming ~~consisting in~~ comprising allowing the gas to be reformed to react in the presence of at least one oxidizing gas, in an electrical reforming reactor ~~according to claim 96~~ comprising at least one possibly substituted hydrocarbon, and/or at least one possibly substituted organic compound, containing carbon atoms and hydrogen as well as at least one heteroatom, in the presence of an oxidizing gas;

said reactor including:

- an enclosure;
- a reaction chamber provided with at least two electrodes and disposed inside the enclosure, said reaction chamber comprising at least one conductive filling material which defines as a whole or in part a reforming catalyst, the conductive filling material being electrically insulated from a metal wall of the enclosure so as to prevent any short-circuit;
- at least one gas to be reformed supply duct;
- at least one oxidizing gas supply duct, that is distinct or not from the gas to be reformed supply duct;
- at least one reformed gas outlet; and

one electrical source adapted to power up the electrodes and result in the production of an electronic flux in the conductive filling material between the electrodes.

134-135. (Canceled)

136. (Currently Amended) Electrical process according to claim 133, in which the ~~lining~~ filling material of the reaction chamber is pre-heated before feeding the gas to be reformed and the oxidizing gas, at a temperature comprised between 300°C and 1500°C, under inert atmosphere ~~such as nitrogen, by previously carrying out step c)~~.

137. (Currently Amended) Electrical process according to claim 133, in which the gas to be reformed ~~consists of~~ comprises at least one compound of the group consisting of C_1 to C_{12} hydrocarbons, ~~which may be substituted for example with the following groups: alcohol, carboxylic acid, ketone, epoxy, ether, peroxide, amino,~~

~~nitro, cyanide, diazo, azide, oxime, and halides such as fluoro, bromo, chloro, and iodo, said hydrocarbons being branched, unbranched, linear, cyclic, saturated, unsaturated, aliphatic, benzenic and aromatic,~~ and ~~preferably~~ having a boiling point lower than 200 °C~~, more preferably a boiling point lower than 150 °C, and still more preferably a boiling point lower than 100 °C~~.

138. (Currently Amended) Electrical process according to claim 137, in which the hydrocarbons are selected from the group consisting of the compounds: methane, ethane, propane, butane, pentane, hexane, heptane, octane, nonane, decane, undecane, dodecane, each of these compounds being linear or branched~~, including mixtures of at least two of these compounds~~.

139. (Previously Presented) Electrical process according to claim 133, in which the gas to be reformed is a natural gas.

140. (Currently Amended) Electrical process according to claim 139, in which the gas to be reformed is a natural gas initially containing <u>less than 0.4% by vol. of</u> sulfur ~~and having previously been treated to remove sulfur, preferably so as to advantageously reduce the sulfur content in excess of 0.4%, more advantageously in excess of 0.1% and still more advantageously in excess of 0.01%, the percentages being given in volume~~.

141. (Canceled)

142. (Currently Amended) Electrical process according to claim 133, in which the gas to be reformed is a biogas, ~~resulting for example from the fermentation of various organic matters,~~ said biogas ~~preferably consisting of~~ <u>comprising</u> 35 to 70% methane, 35 to 60% carbon dioxide, from 0 to 3 % hydrogen, from 0 to 1 % oxygen, from 0 to 3 % nitrogen, from 0 to 5 % various gases ~~(hydrogen disulfide, ammonia, etc)~~ and water vapor.

143. (Currently Amended) Electrical process according to claim 133, in which the gas to be reformed is a natural gas ~~consisting of~~ <u>comprising</u> 70 to 99 %

methane, ~~accompanied with~~ 0 to 10 % ethylene, from 0 to 25 % ethane, from 0 to 10 % propane, from 0 to 8 % butane, from 0 to 5 % hydrogen, from 0 to 2 % carbon monoxide, from 0 to 2 % oxygen, from 0 to 15 % nitrogen, from 0 to 10 % carbon dioxide, from 0 to 2 % water, from 0 to 3 % of one or more C_5 to C_{12} hydrocarbons and traces of other gases.

144. (Currently Amended) Electrical process according to claim 133, in which the oxidizing gas consists of at least one gas selected from the group consisting of carbon dioxide, carbon monoxide, water, oxygen, nitrogen oxides ~~such as NO,~~ ~~N_2O, N_2O_5, NO_2, NO_3, N_2O_3~~, and mixtures of at least two of these components~~, preferably mixtures of carbon dioxide and water~~.

145. (Currently Amended) Electrical process according to claim 133, in which the gas to be reformed ~~consists of~~ comprises at least one of the compounds of the group consisting of organic compounds of molecular structure whose constituents are carbon and hydrogen, as well as one or more heteroatoms such as oxygen and nitrogen, which~~ may advantageously~~ comprise one or more functional groups selected from the group consisting of alcohols, ethers, ether-oxides, phenols, aldehydes, ketones, acids, amines, amides, nitriles, esters, oxides, oximes and ~~preferably~~ having a boiling point lower than 200 °C~~, more preferably a boiling point lower than 150 °C, and still more preferably a boiling point lower than 100 °C~~.

146. (Previously Presented) Process according to claim 145, in which the organic compounds are methanol and/or ethanol.

147. (Currently Amended) Electrical process according to claim 133, in which the gas to be reformed may also contain one or more gases selected from the group consisting of hydrogen, nitrogen, oxygen, water vapor, carbon monoxide, carbon dioxide, and inert gases from group VIIIA of the periodic table (CAS numbering)~~, or mixtures of at least two thereof~~.

148. (Previously Presented) Process according to claim 133, in which the mixture of gases supplied to the reaction chamber contains less than 5 volume % of oxygen.

149. (Currently Amended) Electrical process according to claim 133, in which the mixture of gas to be reformed and oxidizing gas ~~consists of~~ comprises 25 to 60 % methane, from 0 to 75 % water vapor and from 0 to 75 % carbon dioxide~~, preferably from 30 to 60 % methane, from 15 to 60 % water vapor, and from 10 to 60 % carbon dioxide, and still more preferably from 35 to 50 % methane and 20 to 60 % water vapor and from 10 to 50 % carbon dioxide~~.

150. (Currently Amended) Electrical process according to claim 149, in which the mixture of gas to be reformed and of oxidizing gas ~~consists, in a preferred mode, of~~ comprises about 39.0 % methane, and the oxidizing gas consists of about 49.0 % water vapor and ~~bout~~ about 12.0 % carbon dioxide.

151. (Currently Amended) Electrical process according to claim 133, in which the carbon/oxygen atomic molar ratio in the gas mixture that is fed into the reaction chamber is comprised between 0.2 and 1.0~~, preferably this ratio is comprised between 0.5 and 1.0, and still more preferably said ratio is comprised between 0.65 and 1.0~~.

152. (Currently Amended) Electrical process according to claim 133, in which ~~step c) is carried~~ the electrodes are powered up by using an alternating (AC) or direct (DC) current that is modulated as a function of the level of temperature to be maintained in the reactor~~, preferably in continuous by preventing stops and applying only moderate changes in the amperage~~.

153. (Currently Amended) Electrical process according to claim 133, in which ~~steps b), c) and d) are carried at~~ the filling material is heated to a temperature ~~level located~~ between 300 and 1500 °C~~, preferably in a range located between 600 and 1000 °C, and still more preferably in a range located between 700 and 900 °C~~.

154. (Currently Amended) Electrical process according to claim 133, in which ~~steps b), c) and d) are~~ is carried out at a pressure in the reaction chamber that is higher than 0.001 atmosphere ~~and that is preferably comprised between 0.1 and 50 atmospheres, and that is still more preferably comprised between 0.5 and 20 atmospheres~~.

155. (Previously Presented) Electrical process according to claim 154, in which the pressure profile is maintained constant in the reaction chamber during reforming.

156. (Currently Amended) Electrical process according to claim 133, wherein the process is ~~carried out in~~ continuous.

157. (Currently Amended) Electrical process according to claim 133, in which the reforming reaction is catalyzed with jumping micro-arcs between the particles of the ~~lining~~ filling material or with activated sites at the surface of the particles of ~~lining~~ filling material, through accumulation of charges and/or by passing an electrical current.

158. (Currently Amended) Electrical process according to claim 133, wherein the process is carried out in batch for periods of at least 30 minutes.

159. (Currently Amended) Electrical process according to claim 158, in which the ~~lining~~ filling material is replaced between two periods of implementation.

160. (Currently Amended) Electrical process according to claim 133, in which the conductive ~~lining~~ filling material has a porosity index comprised between 0.50 and 0.98~~, more preferably between 0.55 and 0.95, and still more advantageously between 0.60 and 0.90~~.

161. (Currently Amended) Electrical process according to claim 133, in which the time of residence of the reactants is ~~preferably~~ more than 0.1 second~~, more preferably more than 1 second, and still more preferably more than 3 seconds~~.

162. (Currently Amended) Electrical process according to claim 133, in which ~~for~~ at least one of the electrodes~~, the~~ has perforations that are uniformly distributed with a density that corresponds to at most 100,000 openings per cm^2 of electrode surface and said openings are such that the loss of charge due to passage of gas through the electrode or electrodes is not in excess of 0.1 atmosphere.

163-167. (Canceled)

168. (Currently Amended) Use of one or more electrical reactors according to claim 96, for:

(i) the production of synthesis gas used for example for the production of methanol; ~~, and preferably for plants having an electrical consumption of 1 to 5 MW:~~

(ii) valorizing energy and/or chemical products derived from biogas produced in sanitary burying sites;

(iii) producing hydrogen for fuel applications associated with highway transportation~~, by way of example for supplying automobiles and buses~~; and

(iv) producing hydrogen for portable or stationary applications~~, by way of example for feeding fuel cells intended for residences and highway vehicles~~.

169. (Currently Amended) Electrical process according to claim 133, used for:

(i) the production of synthesis gas used for example in the production of methanol~~, and preferably for plants having an electrical consumption of 1 to 5 MW~~;

(ii) valorizing energy and/or chemical products derived from biogas produced in sanitary burying sites;

(iii) producing hydrogen for fuel applications associated with highway transportation~~, by way of example for supplying automobiles and buses~~; and

(iv) producing hydrogen for so-called portable or stationary applications~~, by way of example for supplying fuel cells intended for residences and highway vehicles~~.

170. (Previously Presented) Use of the process according to claim 133, for desulfuring sulfur containing gases.

171. (Currently Amended) Chemically active conductive ~~lining~~ filling material for a reaction chamber,

wherein the filling material is adapted for catalytic reforming, in the presence of an oxidizing gas, a gas comprising at least one ~~possibly substituted~~ hydrocarbon, and/or at least one ~~possibly substituted~~ organic compound, containing carbon and hydrogen atoms as well as at least one heteroatom;

said ~~lining~~ filling material consisting of unitary elements, based on intermetallic compounds and/or their oxides, and wherein said unitary elements ~~being~~ are adapted, when the filling material is disposed in a reaction chamber, to be subject to an electrical current,

wherein the filling material is adapted to be electrically insulated from a metal wall of an enclosure of a reaction chamber so as to prevent any short-circuit.

172. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, in which the intermetallic compounds are selected from the group consisting of elements of group VIII of the periodic table (CAS numbering) and alloys thereof containing at least one of said elements, ~~preferably the lining is selected from the group consisting of at least 80 % of one or more of said elements of group VIII, still more particularly from the group consisting of iron, nickel, cobalt and their alloys containing at least 80 % of one or more of these elements, still more advantageously, the lining is selected from the group consisting of carbon steels~~.

173. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, in which the unitary elements consist of a material which, in dense state, has an electrical resistivity at 20 °C that is comprised between 50 x 10^{-9} and 2000 x 10^{-9} ohm-m~~, more preferably comprised between 60 x 10^{-9} and 500 x 10^{-9} ohm-m, and still more preferably comprised between 90 x 10^{-9} and 200 x 10^{-9} ohm-m~~.

174. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, in which the unitary elements are in a form selected from the group consisting

of straws, fibers, filings, frits, balls, nails, threads, filaments, wools, rods, bolts, nuts, washers, chips, powders, ~~grains,~~ granules and perforated plates.

175. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, in which the unitary elements ~~at least partly consist of~~ comprise perforated plates and the surface percentage of the perforations in the plate is comprised between 5 and 50 %~~, and still more preferably between 10 and 20 %~~.

176. (Currently Amended) Conductive ~~lining~~ filling material according to claim 174, in which the unitary elements that constitute the ~~lining~~ filling material consist of soft steel wool.

177. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, in which the unitary elements of the ~~lining~~ filling material are previously treated to increase at least one of the following characteristics:

a. specific surface area;
b. purity; and
c. chemical activity.

178. (Currently Amended) Conductive ~~lining~~ filling material according to claim 177, in which the previous treatment is a treatment with a mineral acid and/or a heat treatment.

179. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, consisting of fibers having a characteristic diameter comprised between 25 micrometers and 5 mm, ~~still more preferably between 40 micrometers and 2.5 mm, and still more preferably between 50 micrometers and 1 mm,~~ as well as a length higher than 10 times its characteristic diameter~~, more preferably higher than 20 times its characteristic diameter and still more preferably higher than 50 times its characteristic diameter~~.

180. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, defining a porous medium having a volume surface of more than 400 m^2 of

exposed surface per m^3 of reaction chamber~~, preferably more than 1000 m^2/m^3, still more preferably more than 2000 m^2/m^3~~.

181. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, consisting of balls and/or threads based on at least one element of group VIII and at least one metal oxide~~, preferably iron or steel based~~.

182. (Currently Amended) Conductive ~~lining~~ filling material according to claim 171, having a porosity index comprised between 0.50 and 0.98~~, more preferably comprised between 0.55 and 0.95, and still more preferably between 0.60 and 0.90~~.

183. (Currently Amended) Conductive ~~lining~~ filling material according to claim 182, consisting of wool made of steel threads mixed with spherical materials ~~such as balls made of steel~~.

184. (Currently Amended) ~~Conducting lining according to claim 171, containing, in addition to the conductive lining,~~

A component for a reaction chamber, wherein the component is adapted for catalytic reforming, in the presence of an oxidizing gas, a gas comprising at least one hydrocarbon, and/or at least one organic compound, containing carbon and hydrogen atoms as well as at least one heteroatom,

the component comprising a conductive filling material and non conductive and/or semi-conductive and/or electrically insulating materials, ~~such as ceramics and alumina, the latter being adequately~~

wherein said filling material consists of unitary elements, based on intermetallic compounds and/or their oxides, wherein the unitary elements are adapted, when the component is disposed in a reaction chamber, to be subject to an electrical current

wherein the filling material is adapted, when the component is disposed in ~~the~~ a reaction chamber, ~~so as~~ to adjust the total electrical resistance of the ~~lining~~ filling material.

185. (Previously Presented) In a reforming process, use of unitary elements based on intermetallic compounds and/or their oxides, simultaneously as catalyst and as heating means in their quality as electrical conductors.

186. (Previously Presented) Use of conductive unitary elements, based on intermetallic compounds and/or their oxides as catalyst in a reforming reactor according to claim 96.

187. (Previously Presented) Use according to claim 184, in which the unitary elements are in a simple geometric form.

188. (Previously Presented) Use according to claim 184, in which the unitary elements are in porous form and suitable for the catalysis of the reforming reaction and for heating reactants used in the reforming reaction.

189. (Previously Presented) Use according to claim 171, in which the unitary elements constitute a fixed bed crossed by an electronic flux.

190. (Previously Presented) Use according to claim 171, in which the unitary elements are based on iron.

191. (New) A reactor according to claim 104, wherein said elements of group VIII are selected from the group consisting of iron, nickel, cobalt, and alloys containing at least 80% of one or more of these elements.

192. (New) A reactor according to claim 191, wherein the filling material consists of a carbon steel.